Remarks

In the application, claims 1 through 6 and 20 are pending. No claims currently stand allowed.

The Office Action dated August 23, 2005, has been carefully considered. The Office Action rejects claims 1 through 6 under 35 U.S.C. § 103(a) as obvious in light of U.S. Patents 6,499,114 ("Almstead") and 6,591,296 ("Ghanime").

Claim 1 is distinguished from Almstead and Ghanime at several points. First, the cited art does not compare detected signals "to a signal model." Rather, Almstead simply determines whether the detected signal "deviates from a previously stored value by a first predetermined amount." Almstead, column 3, lines 11 through 13. This "previously stored value" is not a "signal model." Paragraph **[0042]** of the present application gives an embodiment of a "signal model." A detector creates a statistical signal model by monitoring signals during normal operation. The signal model accounts for correlations among detected signals. For example, paragraph **[0042]** explains:

> The detector 302 then fits the best reference curve(s) through the training data points as known in the art to generate the statistical model. Those skilled in the art will recognize that there are a wide variety of methods that can be used to fit the curve and a wide variety of optimization points that may be chosen. Additionally, there are a number of different types of curves that may be used (e.g., higher order curves such as second order, third order, fourth order, etc. or multiple-segment linear curves). As statistical modeling techniques improve or are developed, the detector 302 is updated with the new/improved techniques.

Thus, the signal model of claim 1 is more than Almstead's simple "previously stored value," and claim 1 is patentably distinct from Almstead for this reason.

Second, the cited art does not teach a "subsequent analysis of the information by diagnostic tools maintained elsewhere." Almstead describes a two-level diagnostics system, while claim 1 includes these four levels:

Level 1: "comparing the detected signals to a signal model maintained locally"

Level 2: "an initial analysis of the information by diagnostic tools maintained at the remote location"

Level 3: "A subsequent analysis of the information by diagnostic tools maintained elsewhere"

Level 4: "a final analysis by a team of humans aided by a collaborative environment" These four levels, captured in the elements of claim 1, together present a more complicated system than that taught by Almstead and Ghanime.

Claim 3 is similarly distinct from the cited art because claim 3 calls for a statistical signal model unlike Almstead's "previously stored value."

The subject matters of claims 4 and 5 are entirely novel with respect to the cited art. In claim 4, when a sensor fails, the signal model is regenerated without that sensor. In claim 5, the place of a failed sensor in the signal model is replaced by a replacement signal. In addition to not having a signal model, the cited art does not teach how to proceed in the presence of a failed sensor.

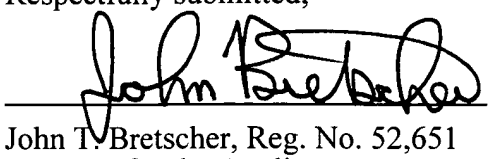
Claim 6 is also entirely novel over the cited art. In claim 6, a new diagnostic is added to Level 2 (see example above) when an anomaly is diagnosed at Levels 3 or 4. The cited art does not teach adding to the diagnostic tools, nor does it even consider anything higher than a second-level diagnostic.

New claim 20 is added in order to more particularly point out and distinctly claim the present invention. It emphasizes that the Level 1 diagnosis can be strictly binary, that is to say, that Level 1 only detects an anomaly and leaves it up to the higher levels to determine the nature and extent of the anomaly. Almstead, on the other hand, performs a very complicated analysis at Level 1. The possibility for a binary Level 1 is supported by the decision box 508 of Figure 5a (Yes or No) and by paragraph **[0044]** of the present application. For this reason, and for the reasons given above with respect to claim 1, claim 20 is also patentable over the cited art.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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